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The Future of American Gardening.

IT is not surprising that few examples of the gardener's art in its highest development should be met with in America, especially in the more recently settled portions of the country. Even where the designing and planting of a garden are good, the element of time is needed to produce that ripeness and repose which are so satisfying to the contemplative mind. This mellow maturity which yet gives no hint of deterioration and decay only comes with years of care. A new country, or one of shifting population not only lacks the interest which accompanies long continued human association, but nature itself is not subdued into that tranquil and home-like aspect which is worn only where generation has succeeded generation, each impelled by a strong local attachment to its birthplace to conserve and develop its native beauties with affection and intelligence.

And yet the American people are inferior to none in general and genuine appreciation of natural beauty, and no country in the world is endowed with nobler landscape features, a more hospitable climate, or a greater richness and variety of vegetation than our own. Nowhere are flowers more universally cultivated or grown with greater skill. In no other country has the business of the florist been so developed and improved. Nowhere else have the various forms of so-called "decorative gardening" been so profusely practiced. Much of this might perhaps fall under the condemnation of severe taste, but some excuse for it is found in the fact that we have been constantly struggling against wild nature, and something trim and prim, ornate and artificial, is demanded, as a sign that nature has been subjugated. It is noteworthy that those who have been brought up on the pioneer line of civilization admire, when they come to the older States, a formal flower bed more than they do the best examples of planting in the natural style, and this is perhaps because the latter is more suggestive of the untamed forces with which they always have been forced to fight. But whatever may be the cause of this devotion to formal flower gardening, the fact remains that the plants themselves are cultivated with singular knowledge and success.

On the other hand, in love of trees and skill in their cultivation, we are far behind the English and Italians. In street planting, especially in our larger towns, we have much to learn from the French, the Germans and other continental nations, while in the skillful use of hardy shrubs and herbaceous plants we are far excelled by other nations. Great progress, however, has been made in this country of late years in the cultivation of orchids and various classes of green-house plants, and of these America now possesses collections hardly surpassed anywhere. And finally, in the highest branch of gardening, the creation of landscape pictures, for which the growing of trees and shrubs and flowers and vines is but mixing the colors on the palette, we have still much to learn from older countries. And yet, that American ability for work of this kind is not excelled, is shown by some of the fine old places on the Hudson, planted early in the century, largely with native trees, which would kindle admiration anywhere. Our older parks, too, like those of New York and Brooklyn, are consistent and impressive works of art, and in spite of much neglect and mismanagement, are noble monuments of their designers' taste and skill.

And there are signs of awakening here in artistic gardening. This is seen in the many instances where men of wealth are preparing spacious pleasure grounds about their houses, and in the growing desire among those of more modest means to beautify their home surroundings. Above all is this tendency manifested in the more frequent inquiry for aid from landscape gardeners and in the number of young men who are turning toward this profession as one which has in it the hope of emolument and distinction.

The future of gardening in America, then, is bright with promise. Our country offers to the landscape gardener wonderful advantages in its endless variety of scenery, the unrivaled richness of its Flora, and such diversity of soil and climate that somewhere within its borders every extra-tropical plant will grow. The imagination can conceive of nothing more lovely and refreshing than a spring garden in New England when vegetation bursts suddenly forth from the restraints of the long winter; nothing more glorious than the color that flames through New England woodlands when trees and shrubs and humbler plants are preparing for their season of rest. And what a field for the artist is offered in the warm rich valleys of the southern Alleghenies, the home of the most beautiful deciduous forest of the world! And as trees and shrubs which have developed under the same sky, blend in softer and more perfect harmonies of form and color than do those brought together from different climates and continents, here where the American forest culminates in its greatest beauty and richness of composition, the artist capable of using all this wealth of vegetation will find his greatest opportunity. And here, too, he can collect, if Nature has not supplied him with sufficient material for his pictures, the plants of all the temperate zones—the evergreens of China and Japan, the Rhododendrons of the Himalayas, the trees of Europe and the Conifers from the highlands of Mexico. Another ideal garden could be made on our north-west coast, where plants which luxuriate in the moist regions of the temperate zone would be at home; while in southern California could be gathered the trees of the Mexican plateau, of the Mediterranean basin, of Australia, and of all the dry countries of the world, and here gardens might be made surpassing in richness and variety of interest even those of the Riviera.

With such advantages we may reasonably look forward to a time when this country will be a land of gardens. What is now needed is that the gathering interest in planting should be properly directed and developed. The basis of

good gardening is the love of nature. To nature the gardener who would be something more than a mere cultivator of plants must turn for inspiration. From the study of nature alone can be learned composition, harmony and fitness in arrangement, and without these the gardener can never hope for success in the creation of a landscape.

To the notes on some American Thorns in another column, it may be well to add that Michigan Thorns give but a faint idea of the value of the different American species of this genus as ornamental plants. The real home of the American Thorn is in the region south of the Red River—that is, in western Louisiana and eastern Texas. Here can be found growing a larger number of species of this genus than in any other part of the world; and here many of our species reach their greatest individual development. Here only can be found the blue fruited *C. brachyacantha*, bordering the low, wet prairies of western Louisiana—one of the largest of the genus, and beautiful in habit, foliage, flowers and fruit. Here, too, the white-barked *C. arborescens*, the largest of the genus, the graceful and delicate *C. apiifolia* and *C. æstivalis*, all reach a development unknown in other parts of the country. The last is one of the most ornamental of the American Thorns. Its large flowers appear in February, and these are succeeded three months later by large, very fragrant, scarlet fruit, which is gathered and sold in great quantities in some of the markets of the South, where it is used for making a conserve. This species probably produces the most valuable fruit of any of the genus; although it must not be forgotten that one of the Thorns of the South Atlantic States (*C. flava, var. pubescens*) yields a fruit highly esteemed in the preparation of jellies, which when well made can hardly be distinguished from the true Guava jelly. In the Eastern States, *C. Crus-galli*, all things considered, is the most valuable of our Thorns as an ornamental tree. Its habit, profuse bloom, bright, shining foliage, brilliant autumnal coloring and large, red fruit, untouched by any animal, and hanging upon the trees until February, make this one of the most desirable of all small ornamental trees for American lawns. This, too, is one of the few American trees which seems to thrive in all European climates. A beautiful species of the very largest size, too, is *C. Douglasii* of our north-west coast and northern California, with foliage resembling that of *C. Crus-galli*, but with black fruit, ripening in August. This tree flourishes at the East, flowering and ripening its fruit freely in Massachusetts. We shall have occasion to return to the American Thorns in future numbers.

"To gild refined gold and paint the Lily, to throw a perfume on the Violet"—these are ancient synonyms for lack of judgment and lack of taste, for "wasteful and ridiculous excess." Yet even their century-long citation has not protected us from a sight of the actual follies they hold up to scorn. So far as we know, an effort has not recently been made to improve the Violet's odor, but we almost expect to hear of such an effort, for the Lily is being painted with much ingenuity and perseverance. Carnations with bright green borders, Daffodils likewise edged with green, Lilies-of-the-Valley dyed a pale red and Callas tipped with pink—these are some of the "novelties" which greet us in many florists' windows. If they were shown merely as curiosities, merely as examples of what can be done in defiance of nature's intentions, the case would be bad enough. But as our readers may have seen in the flower-market report in our last issue, dyed Carnations are in "brisk" commercial demand at fifteen cents each and dyed Daffodils at twenty cents!

We have no wish to fall back upon theoretic preachments in protesting against the lack of taste which this fact implies. There is no reason why we should not attempt to modify the original color of flowers, and this is constantly done by skillful hybridizing, cross-breeding and culture. But in such cases we work in accord with natural laws, and the result may be beautiful, and certainly it is not monstrous. But a single glance at a dyed blossom will suffice to prove the artistic brutality of the new process. The "Emerald" is the trade name for the dyed Carnation, it might better have been the "Arsenic"; the combination of the same arsenical tint with the yellow of the Daffodil is excruciating to the eye; the pink-edged Calla is almost loathsome in effect; and all explain themselves at once as having undergone artificial manipulation. We believe the process by which some of them are produced is analogous to that by means of which the human skin may be tattooed, and the result appeals to the same grade of taste. We might as soon have expected to see a lady with a blue anchor on her wrist as with an "Emerald" Carnation in her buttonhole.

Landscape Gardening.—II.

To produce beautiful compositions is the aim of every artist, and the special aim of the landscape gardener is to produce them by arranging the surface of the ground and the plants it bears. It is interesting and instructive to note the points of concord and of contrast which mark his task when it is compared with that of other artists.

He stands with the sculptor and the painter, in contrast to the architect and musician, in that he takes his inspirations directly from nature — works after the schemes and from the models which she supplies. But in some respects he stands quite alone. The painter works with actual colors but merely with illusions of form. The sculptor creates forms but uses colors, if at all, in unnaturalistic and subordinate ways. The landscape gardener depends upon color and form in equal measure and can never dispense with the one or the other.

Moreover, he takes from nature not only his models but his materials and his methods. His colors are those of her own palette, his clays and marbles are her rocks and soils, and his technical processes are the same which she employs. He does not show her possibilities of beauty as in a mirror of his own inventing. He helps her in her actual efforts to realize them—works in and for and with her.

This fact limits and hampers him in certain ways; but under fortunate conditions it helps him to achieve what no other artist can—perfection. "The sculptor or the painter," writes a recent critic, "observes defects in the single model; he notices in many models scattered excellences. . . . . To correct those defects, to reunite those excellences, becomes his aim. He cannot rival nature by producing anything exactly like her work but he can create something which shall show what nature strives after. . . . . The mind of man comprehends her effort and though the skill of man cannot compete with her in the production of particulars, man is able by art to anticipate her desires and to exhibit an image of what she was intending." But the landscape gardener is nature's rival, does create things exactly like her own, can compete with her in perfect workmanship—for does not she herself work with him while he is reuniting her scattered excellences of idea and obliterating her defects? What he cannot do she does for him, from the building of mountains and the spreading of seas to the perfecting of those "particulars" which turn the keenest chisel and blunt the subtilest brush—to the curling of a fern-frond and the veining of a rose. Of course she will not everywhere do everything. If part of her work is in completing man's, part is in preparing for it, and he must respect the frame which she furnishes for his picture, the general scheme which she prescribes. He cannot ask her to build him mountains in a plain, to change a hill-side rivulet to a river, or to make tropical trees grow under a northern sky. But he can always persuade her to produce beauty of some sort if he is wise enough to know for what sort he should ask.

This, of course, is theoretic speaking. Theoretically,

there is no spot on earth an artist could not make beautiful. But some problems would need a life of antediluvian length and dollars as plentiful as the sands of the sea. Practically the landscape gardener—like all other men, and more perhaps than most other artists—is limited by questions of time and money. And he is also limited by his partnership with nature as regards not only the sort but the degree of beauty to which he can attain. Nature may suggest the same sort in two places, but if she prepares lavishly for it in the one case and parsimoniously in the other, the best skill in the world may not be able to make good all her denials and equalize its successes. Yet the landscape gardener can always have what no other artist ever gets—perfection in details; and his general effects, as well as his details, have the great advantage of being concrete and alive. A great advantage indeed—for it means many beautiful results in every piece of work instead of merely one, and perpetual variation in each of the many. His aim is in general the same as that of the landscape painter, who knows that the most potent factors in landscape beauty are light and atmosphere, and who is himself most potent as he simulates them best. But no things in the world—not even the color and texture of the human skin—are so difficult to simulate, so impossible really to reproduce in paint. To the landscape gardener's pictures nature freely supplies them, everywhere and always, and not merely in the one phase for which the painter strives, but in a thousand—changing them with each day of the year and with each hour of the day. And with the passing days and seasons she changes also his terrestrial effects, so that no part of his work is ever twice the same although, if rightly wrought, it is always beautiful. Thus it gives chance and promise for perpetual renewal of the highest kind of pleasure. Our judgments are persistent but our moods continually vary, and we may expect more days of perfect satisfaction from the variable than from the changeless work of art. If we admire a picture we admire it always, but while it may suit us to-day to the inmost fibre of the soul, to-morrow it may leave us cold. Of course there are drawbacks as well as benefits in variability—possibilities of perfect satisfaction are richer in the living landscape, but when realized we cannot keep them for an hour while we are sure of our painting within its narrow range. It will depend upon our temperament which excellence we prefer: limited certainty or uncertain infinitude. But the question does not involve beauty itself—it only involves that finest effect of beauty which means perfect momentary accord between the spirit of the observer and the spirit of the work of art. As regards intrinsic perfection, the best results of the landscape gardener surpass the best painted landscapes by as wide an interval and for the same great reasons as Pygmalion's Galatea surpassed all the other statues which he may have made.

M. G. Van Rensselaer.

Professor Anton de Bary.

HEINRICH Anton de Bary, who was born at Frankfort-on-the-Main, Jan. 26th, 1831, and died at Strasburg, Jan. 19th, 1888, was a striking example of a scientific man who, while pursuing science for its own sake, proved also a benefactor to those engaged in the practical work of horticulture and agriculture in consequence of his brilliant discoveries in vegetable pathology. His botanical career began immediately after he left the university where he had devoted himself to the study of medicine, and, although at the time of his death he had not passed the period of middle age, few have exerted so marked an influence in shaping the course of the botany of the present day. For a short time he was the assistant of Professor Hugo von Mohl at Tubingen and an instructor in botany. In 1855 he was called to Freiburg in Brisgau as Assistant Professor of Botany and Director of the Botanical Garden, where he remained until 1867, when he accepted a professorship at Halle. Shortly after the close of the Franco-German war, in 1872, he was appointed professor in the reorganized University of Strasburg, a position which he held until his death, although he had tempting calls to Vienna, Berlin and Leipsic. In the summer of 1887 he was attacked by what proved afterwards to be a tumor of the jaw, and, although he submitted to an operation in the hope of relief, he succumbed to the disease after several months of suffering.

The botanical works of Professor De Bary relate principally to the structure and development of cryptogams, but he was also the author of a number of papers on histological subjects, and his "Comparative Anatomy of the Vegetative Organs of Phanerogams and Ferns," published in 1877 and since translated into English, is the best general work on the subject in existence. At one time he was interested in the study of algæ and published important papers on *Conjugateæ*, on *Oedogonium* and *Bolbochæte*, and on the marine species, *Acetabularia Mediterranea*. We should also mention his important work on Apogamy in Ferns, in which he gave a detailed account of the manner in which the sexual reproduction in ferns may be replaced by a non-sexual growth, with remarks on apogamy in other groups.

But his most important work and that which is of most interest to our readers was on the development of Fungi, especially those which produce disease in plants. One of his earliest publications, in 1853, was "Investigations on the Rust-fungi," especially those which cause diseases of grain and other useful plants. This work was a careful study of a number of species then supposed to belong to *Uredineæ*, rusts, and *Ustilagineæ*, smuts. At that date De Bary adhered to the views of older writers, and considered that the rust stage, or Uredo, was not connected with the final, or teleutosporic forms, like *Puccinia*. It was not until the publication of Tulasne's paper in 1854 that botanists recognized that the red rust, the Uredo, was only a stage of the black rust. In a remarkable paper published in 1863, "Researches on the Development of some Parasitic Fungi," De Bary showed by an examination of *Uromyces appendiculatus*, the Bean-rust, that not only were there two stages, the Uredo or red rust, and the teleutosporic, or black rust, but that a third stage, the Æcidium, or cluster-cup, is found in Fungi of the rust family. In 1865 in his "New Observations on *Uredineæ*" and in a supplement published the following year he gave an account of his experiments in which he showed that the cluster-cup growing on the Barberry is a stage of the *Puccinia*, or blight, found on different grains and grasses. These conclusions, warmly supported by some and opposed by others, may be considered the starting point of one of the most fascinating, and, from a practical point of view, most important fields of botanical study, the metamorphoses of *Uredineæ*. Scarcely less important than the paper last mentioned is that on *Æcidium Abietinum*, in 1879, where a very minute account is given of the different stages of the rust on *Abies excelsa* and *Rhododendron ferrugineum*.

The researches of De Bary on the Potato rot are well known. The Fungus which causes the rot was first described in 1845 by Madame Libert, a Belgian botanist. De Bary, in 1860, described the method of the germination of the conidial spores and the production of zoospores—an important discovery, practically as well as theoretically. In his "Researches," published in 1863, to which we have already referred, he included an account of the rots, *Peronosporeæ*, which is a model of thoroughness and clearness. Besides these, he published in 1861 a paper on the "Present Epidemic Disease of Potatoes," a popular, well written sketch, and in 1876, "Researches into the Nature of the Potato Fungus," in which he embodied the results of investigations made at the request of the Royal Agricultural Society of Great Britain, in which there is not much added to our knowledge of the subject.

We can only refer briefly to De Bary's other mycological writings, which appeal rather to the specialist than the general reader. He contributed much to our knowledge of the *Myxomycetes*, a group whose position is still doubtful, some regarding them as animals and others as plants, and he published numerous valuable papers on *Saprolegnieæ*, *Ascomycetes*, and other orders of Fungi. We owe to him the best summary of what is at present known about Fungi. His "Comparative Morphology and Biology of Fungi, Mycetozoa and Bacteria," issued in 1884, and recently translated into English, is an admirable treatise on a subject which attracts more and more students every year. Nor should we forget his "Lectures on Bacteria," of which a second edition has been issued, although the first only appeared in 1885. These lectures present, in a most attractive and readable form, the present state of bacteriological science.

De Bary was an excellent teacher, as well as an original investigator. In the lecture room he was not seen to such advantage as when in his laboratory among a small number

of earnest students. His delivery was not marked by any rhetorical elegance, but his lectures were crammed with facts, and his remarks were always to the point and full of suggestions. His laboratory was a resort of special students from both sides of the Atlantic, and the list of younger professors who now point with pride to the fact that they were once his pupils, is a very large one. Earnestness and thoroughness characterized his work both as a teacher and an investigator, and his geniality and sprightliness made him a great favorite with all who knew him. *W. G. Farlow.*

Winter in Mobile.

IN ordinary years the waves of low temperature from the north are felt to some extent through the coast regions of the Gulf States. Heralded by a northern blast which clears the sky, come a few clear frosty days, or occasionally a slight fall of evanescent snow; then plant life takes a brief rest, and the landscape, for a space, assumes a wintry look. Usually the departure of the last Rose of summer, which lingers till mid-December in our gardens, is followed by a rest in vegetation, which awakes again under the breath of spring in late January. This year, however, the mean daily temperature of December was 50° and we had but two slight frosts. The annual garden weeds, like *Œnothera humifusa*, Chickweed, Peppergrass, and intruders like *Veronica peregrina* and *Lamium amplexicaule*, kept up luxurious growth all winter long, and the low Speargrass (*Poa annua*) covered waste places with its sward of lively green, without any interruption. Several of our late autumnal plants, like some species of Chrysopsis and Aster, under cover of the woods, were found blooming long after New Year's. The Japanese plum, *Eriobotrya Japonica*, began to bloom in early November, and continued to unfold its panicles of fragrant white flowers until the close of the year, mingling their perfume with that of the flowers of the Sweet Olive (*Olea fragrans*). Violets, Candytuft, Sweet Alyssum and Daisies bloomed abundantly, as did the Sweet Olive and all varieties of the Camellia. Among the forest trees, the White Cedar was in full bloom on the first day of December, and the leaves of deciduous trees were still vivid with their autumnal tints. Festoons of different species of Smilax, loaded with berry clusters of gleaming scarlet or purple black, were clambering over the broad leaved evergreens, giving to the midwinter woodlands a tropical beauty, in the presence of which it was hard to realize that our northern States were swept by blizzards. In fact, it seemed that autumn joined hands with spring, the year passing almost imperceptibly from one to the other.

The January weather was still more remarkable, showing the mean temperature to be only 54°. Before the end of its second week, *Viburnum protensum*, one of our hardiest exotic shrubs, taking the lead among the harbingers of spring, was followed promptly by an early Honeysuckle, with its fragrant pale rose flowers, while Narcissus and Hyacinths were adorning our flower beds. Later in the month the thermometer fell to 20°, and the mean temperature for five days was 46°. But the slight injury caused to vegetation quickly vanished with the sunny days that followed and plant life proceeded without a check until the present time.

In January, too, the Japan Quince blazed with scarlet bloom and the Forsythia hung out its golden bells, and in the last week of the month our southern Bluets, *Houstonia patens*, were smiling in the pastures and pine barrens. In the forests, the Cypress, the Red Cedar and the Swamp Maple were in full bloom, as was the *Alder* along the banks of the streams, while climbing over the bushes the loveliest of our wild vines, the Yellow Jessamine, had begun to unfold its flowers.

Mobile, February 15th. *Karl Mohr.*

Foreign Correspondence.

London Letter.

Lælia albida, a lovely little Mexican Orchid, with its ivory white and fragrant flowers, is one of the best of all winter flowering Orchids, and especially valuable because it can always be relied on for Christmas bloom. A single spike is beautiful, but imagine a mass of it three feet across, carrying no fewer than 400 flowers! Such is the sight I enjoyed the other day in Sander's Orchid nursery. There were two masses of almost equal size growing on flat rafts, and suspended over a water tank, surrounded by great blocks of artificial rock, in a large intermediate Orchid-house. The two plants have together over 800 flowers, a charming mass of delicate white and pink, for the lips of all the flowers are rose-tinted. The fragrance, too, of such a quantity of bloom was delicious, and pervaded the whole house. Both masses were in the same state as when imported, and are supposed to be the largest ever brought to England alive. This Lælia is not only one of the prettiest of winter Orchids, but is one of the easiest to grow, merely requiring to be placed on wood blocks or in baskets, in what we call here a cool house, one in which the summer temperature ranges from 60° to 70°, and not falling below 45° on winter nights.

A new Angræcum, which proves to be one of the prettiest ever introduced, was lately exhibited here for the first time by the Messrs. Sander, under the name of A. Sanderianum, and won the highest certificate of merit. It is small in growth, having a few long, thick leaves of deep green, and about two inches wide. The flower spike is about a foot long of a soft fawn color and thickly beset with flowers. These are about an inch across, with snow-white sepals and petals, and slender white spurs some three inches in length. The flowers being so numerous, and of such purity, and the spikes so graceful, the effect of the flowering plants is charming. I saw the same plant in the St. Albans Orchid nursery by the hundred, every one being in bloom, with two and three spikes on each. It is therefore very floriferous, and is considered one of the easiest to manage. The thicket of white flower spikes, all gracefully drooping from suspended plants, was one of the most pleasing sights I have seen among Orchids.

Percival's Cattleya, one of the newer varieties of the polymorphous *C. labiata*, heralded the flower season of this genus Those who confine their collection of Orchids to the most select must include this one, as it is not only the earliest flowering of all, but one of the most beautiful. When introduced a few years ago it was said to be autumn flowering, but it has not proved to be so here, although I am told that in America it flowers some weeks before it opens here. At Sander's nursery about holidays this Cattleya was the chief feature, hundreds of plants being in bloom, exhibiting a great variation of color, some being many shades darker than others. It is what one would call a medium-sized Cattleya. The sepals and petals are a deep rose pink, and the lip is invariably adorned with an intensely deep blotch of maroon crimson, which looks like velvet. It is a very free flowering kind, and with us is not at all difficult to grow well.

The Snowy Masdevallia tovarensis and the fiery-looking *M. ignea* are two invaluable winter Orchids, both being in bloom now. I have recently seen a plant of the white carrying sixty flowers in twos and threes on each spike, and another of *M. ignea* whose flowers are orange scarlet, lined with crimson, with forty flowers, evidence of how these gems of the South American Andes flourish in England. I suspect that American Orchid-growers have some difficulty in growing these cool mountain Orchids on account of your hot and dry summers, but in any place where they succeed the two I have named here should be grown in gardens as largely as their owner's accommodation and pocket can afford.

A beautiful green-house climber named *Oxera pulchella*, from New Caledonia, and entirely new to European gardens, was shown here recently for the first time by Sir George Macleay. The plant is nearly allied to *Clerodendron* and in habit of growth resembles the climbing species of that genus. It has long, slender branches, with deep green shining leaves, like those of *Stephanotis*. The flowers are large, tubular and wide-mouthed, pure white and with two protruding stamens. They are borne in large, dense clusters, a score or more together from the leaf axils. It is extremely floriferous, as a flower cluster is borne from almost every leaf point. It is looked upon as a most valuable addition to green-house plants, more particularly as it flowers habitually in the depth of winter, when most appreciated. It will become a popular climber, and the gardener who grew the specimen exhibited, assures me that it is easily cultivated. He grows it in an airy green-house trained to a rafter of the roof. It was brought from a garden in Algiers. The genus *Oxera* has been hitherto unknown to English gardens, and till recently botanists knew but one species, but now they number ten. This climber is, unquestionably, one of the most remarkable plants exhibited of late years.

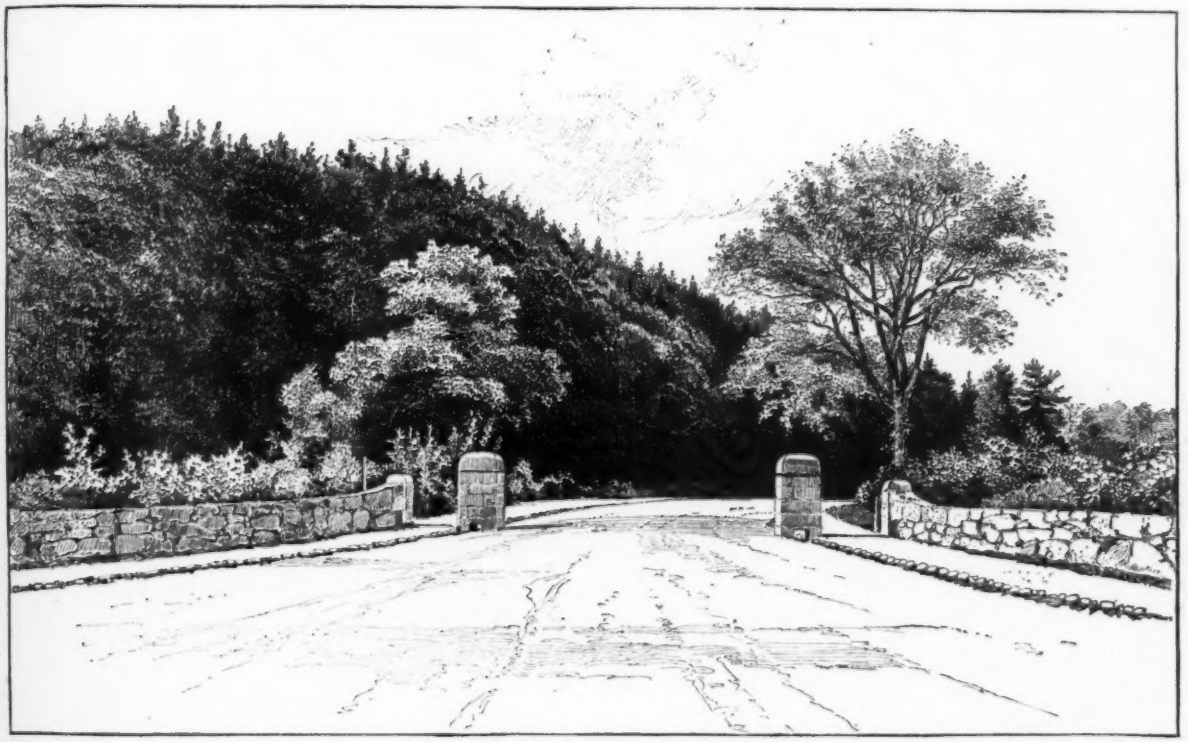
Kennedya Marryattæ (*K. prostrata, var. major, D. C.*), an Australian climbing plant of the Pea family, has been for some time the glory of one of the green-houses in Kew Gardens, and yet it is to be found in few private gardens, though it is such an old plant and so beautiful. I should be glad to hear that it was more generally appreciated in America. No other green-

house climber can compare with it in midwinter, and the fact that it requires little or no cultural attention, if once well planted in an ordinary green-house, enhances its value. At Kew it is planted out in free soil beneath the side stage; the main stem is trained up the rafter on one side of the span roofed house and down the one on the opposite side. The shoots, varying from two to six feet long, are thickly wreathed with bright scarlet flowers, like miniature lobster claws in shape, among the pale green trifoliate leaves, and the whole forms an exquisite floral curtain across the house. It should not be planted out until it gets a good size, as it wants all the light possible when small in order to get strong. When well rooted and about five or six feet high plant it out in a green-house that is well ventilated and has a minimum Winter temperature of about 40° F. I imagine that your hot summers would suit the plant well and so ripen the wood that its winter bloom would be abundant. Besides flowering for several weeks in succession in midwinter, it flowers in spring and summer; in fact, it might be almost called a perpetual bloomer.

The Crimean Lime (*Tilia petiolaris*) promises to become one of our most ornamental deciduous trees. Though not new here, in a nurseryman's sense, it is but little known and rarely planted, though the other silver-leaved Lime, the Hungarian lime (*T. argentea*), is a common stock plant. For many years the Crimean Lime has been known in English nurseries under the erroneous name of *T. Americana pendula*, but its true name is now being adopted. It is an extremely fine tree and different from the other Limes. Its leaves are large, heart shaped, of a deep green above and silvery white beneath. The slender twigs are pendulous, and as the leaf stalks are long and slender, the whole tree is of a gracefully weeping habit, of rounded outline and moderately dense. Perhaps the finest specimen in the country exists in Mr. Maurice Young's nursery at Milford in Surrey. This tree is about sixty feet in height, has a huge head fifty or sixty feet through, and has a diameter of stem of about two feet, and yet it exhibits all the elegance of growth of a young tree. It must be a fast growing Lime, as this large tree has certainly been planted since 1838, when Loudon compiled his Arboretum. At that time it was considered to be a variety only of *T. argentea* and though cultivated at Odessa, was not yet introduced into England.

(The Crimean lime is also generally known in the United States as *Tilia argentea pendula*, although specifically quite distinct from the Hungarian linden, as Sir Joseph Hooker pointed out several years ago (*Botanical Magazine*, t. 6737.) It is one of the most promising ornamental deciduous trees ever introduced into this country. Fine specimens may be seen in the Central Park in this city.—Ed.)

Rhododendron primrose is the finest yellow flowered variety that has yet been obtained among the Javanese or Green-house Rhododendrons which the Messrs. Veitch, of Chelsea, have for years been occupied in improving by hybridizing. This variety, Primrose, is the result of intercrossing a small, pale yellow flowered species named *R. teysmannia* with a hybrid variety with large well formed flowers of a yellowish pink tint, called Maiden's Blush, raised several years ago. The new hybrid had flowers over one and one-half inches across, with broad, overlapping petals, making a handsome symmetrical flower. The color is a clear yellow, with not a trace of the pink tinge of its male parent. It is considered a great stride in advance in the production of a yellow flowered race of green-house Rhododendrons. *W. Goldring.*



Entrance to the Arnold Arboretum.

Entrance to the Arnold Arboretum.

NO coniferous tree excels the Hemlock Spruce when young in grace of outline, softness of spray or brightness of color. As it grows older it becomes a tree of stately proportions, with drooping branches thickly furnished with dark leaves. When massed in northern woods or in the high mountains further south it invests the forest with the charm of a mystery peculiarly its own. North of the drift line, wherever a stream of water has furrowed out a deep gorge, the Hemlock often takes possession of the slopes, making dark glens that are always attractive features in the landscape. By a fortunate chance one of these banks with its original growth unimpared still remains within the limits of the city of Boston and is included in the Arnold Arboretum. This steep hillside is shown in the illustration above. From the road-way which swings around to the right it is separated by a ravine through which flows a small stream and its dark mass of foliage and noble sky-line give a dignity to the entrance which is hardly excelled by that of any park in the world. Besides its effectiveness from an artistic point of view, this representative example of one of our most interesting forms of forest scenery is well placed at the vestibule of the sys-

tematic plantations in which are to be grouped specimens of every species, and well-marked variety of the trees that can be made to flourish here from all the cooler regions of the globe.

Shrub Propagation.

THE old adage, "What is one man's meat is another man's poison," seems especially applicable to the reproduction of hardy shrubbery. Not only each genus, but often each species, and in a few cases each variety, requires a separate method of propagation. For instance, the ordinary Snowball, *Viburnum opulus sterilis*, is of the very easiest manipulation, and strikes like a weed, and yet its Japanese relative, *V. plicatum*, is quite difficult to handle. Most Spiræas are easily propagated by cuttings, and yet the nearly allied *Exochorda* is exactly the reverse. All the Hydrangeas root readily excepting *H. quercifolia*, which is stubborn in this respect. The ordinary Quince emits roots with almost any degree of moisture, but cuttings of the Japan Quince refuse to do so under the most advantageous circumstances.

Most common shrubs, as Weigelas, Spiræas, Hydrangeas, Lilacs, Deutzias, Tamarisks, Viburnums, etc., are best propagated by soft-wood cuttings in midsummer, care being taken to secure the wood as soon as it begins to harden. This is the critical period, and on its observance depends success or failure. Cuttings 3 to 4 inches long, with two or three curtailed leaves at the summit and without any regard to a bud at the base, should be placed in shallow boxes filled with firmly pounded sand. A perfectly close, warm atmosphere, with an abundance of moisture and shade, will cause roots to form in a short time, when they may be gradually inured to the outside air. They will keep in the boxes until the succeeding spring if protected in cold frames.

The Japanese Snowball, *Viburnum plicatum*, from the peculiar nature of its wood, requires a long time to root, and should never be hurried nor deluged with water. The newly rooted plants must be potted singly as soon as possible, and permitted to remain in the house until autumn, when they, too, may be wintered in cold frames. Soft-wood cuttings taken from forced plants in winter root more quickly than those grown in the open air, but the young plants must remain in pots for a year. The weaker short-jointed side shoots always make the best cuttings, and will grow just as rapidly after rooting as those struck from vigorous leading branches.

Any shrub having underground stoloniferous branches, which are, of course, supplied with buds, should be increased by root cuttings, especially where other cuttings are difficult to strike. The Japan Quince, Oak-leaved Hydrangea, *Spiræa opulifolia*, *Philadelphus*, *Rubus* and *Rhus* are examples of this class.

Our stock of most hardy shrubs is most cheaply increased by hardwood cuttings, where an abundance of wood is obtainable, when the weather is not too dry. These may be cut into lengths of eight or nine inches from last year's growth, tied into bundles, and either buried at once in the open ground, or preserved in boxes of sand or moss during freezing weather. At the earliest possible moment in spring, they should be put into rows, in a well prepared piece of ground, and be well tramped about the base. *Exochorda grandiflora*, *Calycanthus floridus*, *Æsculus parviflora* (Dwarf Horse-chestnut), *Euonymus Europeus*, *Spiræa callosa*, *Berberis*, *Mahonia*, *Hypericum*, and some others, seed freely, and thus afford an easy and rapid mode of propagation. Seeds sown thinly in the spring in shallow frames, and covered lightly with brush, will as a rule germinate quickly, and form nice little plants in two or three years.

Divisions of large clumps is mainly practiced on plants difficult to propagate by cuttings, as *Clethra*, *Itea*, etc., or where an old specimen has to be removed, and two or three smaller plants are deemed preferable. Nothing is gained by planting so-called extra-sized shrubs. In the time usually required for such to recover from the removal, young thrifty plants equal them in size, and surpass them in vigor. The long tough stems of most old plants are averse to forming new branches, even when cut severely back, which is not the case with robust young stock.

Layering is generally a tedious process, and may not always be recommended when a large supply of shrubs is needed. Time is money to the nurseryman, and a few young plants gained by bending down the branches of some old specimen, are really of little moment. Still there are exceptions to the rule. By setting out several old clumps of *Magnolia obovata*, Purple-leaved Berberry, or Purple-leaved Hazel, the number of shoots increase with the age of the parent, and readily form roots after being nicked and covered firmly with suitable earth at the base.

Grafting shrubs is restricted to the skilled gardener, and is worse than useless in the hands of a novice. Although easily performed in Europe, owing to certain climatic influences, with us it requires great care and attention. Rhododendrons and Azaleas are necessarily increased in this way. To obtain a supply of the newer and attractive varieties of Althæa, some of our cultivators resort to ordinary whip-grafting. In two years' time, if not injured by the winter, the plants will be of fine size, and suitable for the market.

Foreign gardeners obtain a supply of the newer and rarer varieties of Lilacs, and some other shrubs, by grafting on small seedlings and covering them with a bell-glass, but in this country it is seldom practiced, owing to the amount of care necessary to make it a success. *J. Hoopes.*

Note on our Native Irises.

MANY old world Irises have long been and still are favorites in cultivation, but our own native species have received little attention from horticulturists, and most of them are imperfectly known even to professed botanists. As they are among the handsomest of our wild flowers they deserve the attention and study of cultivators and botanists alike. Of the genus *Iris* there are over a hundred known species, of which we have at least eighteen. These are equally divided between the region east of the great plains and that west of the Rocky Mountains. They may be grouped as follows:—

A.—Eastern and arctic species.

a. Dwarf; the only American species, excepting *I. hexagona*, which have either crest or beard.

I. LACUSTRIS; shores of Lakes Huron and Michigan.

I. CRISTATA; of the Alleghany Mountains.

I. VERNA; wooded hills and pine barrens, from Kentucky and Virginia to Alabama and North Carolina.

b. The *I. tripetala* group, having the inner petals very short.

I. TRIPETALA; pine-barren swamps of the southern Atlantic coast.

I. HOOKERI; on the lower Saint Lawrence River.

I. SETOSA; a Siberian species found in Alaska.

c. The *I. versicolor* group.

I. PRISMATICA *(I. Virginica)*; the slender narrow-leaved species found mainly near the Atlantic coast.

I. HEXAGONA; a tall crested species of the swamps along the southern Atlantic coast.

I. CUPREA; with dull yellow or brownish flowers, in swamps of the inner districts from Southern Illinois southward.

I. VERSICOLOR; the common broader-leaved northern species, from Minnesota to the Atlantic and southward. This species is at present made to include all the forms that cannot be placed in the preceding. Among those forms (often tall and large-flowered) which occur in the Southern States, from Virginia westward and southward, there are some which are certainly distinct from the common Northern form, and perhaps from each other. A comparison of living specimens is necessary, however, to a determination of their distinctive differences.

B. Western species (not readily grouped by characters).

I. MISSOURIENSIS; the only species of the interior, ranging from the Rocky Mountains to the Sierra Nevada, and from the British boundary to Arizona and Colorado.

I. TENAX and I. TENUIS; a slender species of Oregon and Washington Territory.

I. MACROSIPHON, I. DOUGLASIANA, and I. BRACTEATA; of the Coast Ranges of Northern California and Southern Oregon; often low and slender, the flowers in the first two having a long narrow tube.

I. HARTWEGI; a low narrow-leaved species of the Northern Sierra Nevada.

I. LONGIPETALA; a stout several-flowered species of the coast from San Francisco to Monterey.

Few of these Western species have been studied from the living plants and they cannot yet be said to be well known, for in dried and pressed specimens not only the delicate colors but many of the other characteristics of the flowers are lost beyond recovery. But Irises are generally of easy cultivation, adapting themselves readily to a diversity of treatment, and it is much to be hoped that our enterprising florists and lovers of flowers will try their skill upon these our native beauties. They can thus have the satisfaction not only of working a new field which promises rich floral rewards, but also of giving essential aid to the botanist in determining more accurately the characters and limits of the different species. It may be added that Prof. Michel Foster, of Oxford, England, is making

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FROM A BRONZE MEDALLION BY A. ST. GAUDENS.

GARDEN AND FOREST SUPPLEMENT, MARCH 7TH 1888.

Fig. 4. Lilium Grayi.

a special study of the genus, and for that purpose is endeavoring to obtain roots or seeds of all our forms from which to grow the plants in his own garden. Roots from any part of the country, and especially from the South and West, will be very acceptable and thankfully acknowledged, whether sent to him, or to the Botanic Garden, at Cambridge, Mass.

Sereno Watson.

Lilium Grayi.*

UPON the trip which Dr. Asa Gray made to the Alleghany Mountains in 1840 he collected upon Roan Mt., in North Carolina, a single specimen of a lily which was considered by him to be a form of the common *Lilium Canadense*, and as such it was preserved in his herbarium at Cambridge. During the last ten years the same form has again been found upon the same mountain, though not abundantly, and it has also been cultivated in the Cambridge Botanic Garden. Though evidently related not distantly to *L. Canadense*, yet it differs from it so decidedly that it has been deemed deserving of specific rank and has been honored with the name of its discoverer. Its more striking characteristics appear plainly in the accompanying figure. As contrasted with *L. Canadense*, the flowers are smaller, less pendulous, and broader at base; the petals are broader in proportion, less tapering at the top, and not at all recurved; and the leaves are perfectly smooth, and usually broader and less narrowly pointed. In *L. Canadense* they are rough upon the edge and usually also upon the veins beneath, and sometimes over the whole lower surface. In this respect that species differs also from *L. superbum*. The flowers are dark colored, of a deep reddish orange, uniformly dotted within with rather small purple spots. In its native locality it blooms in June. The bulbs are like those of *L. Canadense* and *L. superbum*, renewed from year to year upon a perennial rootstock, and respond as kindly to a similar culture. The species has been found upon the Peaks of Otter in Virginia and probably occurs in many other places in the southern Alleghanies.

S. W.

*L. GRAYI, Watson, *Proc. Am. Acad.*, XIV. 256. Leaves in whorls of 4 to 8, lanceolate, acute or slightly acuminate, not at all scabrous; flowers often solitary, ascending or somewhat nodding, broadly funnelform, two inches long or less, the petals oblanceolate, abruptly acute, not recurved, deep reddish orange, spotted within.

American Thorns as Ornamental Plants.

THERE is a general impression that the native Thorns are valuable as ornamental plants, and yet they are rarely seen in private grounds unless they grow there naturally. There are two reasons for this neglect: the difficulty of transplanting and growing them, and the perplexing variations of the wild plants.

There is little difficulty in growing the Thorns from seeds if the seeds are stratified in sand as soon as ripe, and if the operator is willing to wait a couple of years for the appearing of the seedlings. When young, the plants are removed readily, but success is rare in removing large specimens which have never been transplanted.

The perplexing variations in the Thorns are among their most attractive features and render their cultivation all the more desirable. These variations have reference to size, color, shape, and season of fruits, to habit of growth and occasionally to leaf character. In certain species which occur in Michigan, notably in *Cratægus punctata*, the fruit is so inconstant that it cannot be relied upon for specific characters. Even yellow-fruited forms occur. In some individuals the fruit is nearly as large as a small Siberian crab, and is borne near the centre of the top, hanging in attractive maroon balls from the horizontal spray. In other specimens it is scarcely larger than a pea, and is borne much nearer the ends of the branches, which, in this case, are usually more upright than in the former variation. In short, so inconstant are the Thorn fruits, that the observing traveler in these parts is constantly

attracted and bewildered by them. Many, if not most of these variations, are not reproduced by seeds. In order to perpetuate them the grower should graft from them.

Good ornamental-fruited plants are not abundant. We find that the large-fruited Thorns drop their fruits early. This is due in part to the weight of the fruit and in part to the ravages of the codling moth and the plum curculio. The fruits of the best forms of the scarlet Thorn (*C. coccinea*) are especially liable to drop. We shall spray our plants with Paris-green water next spring. Of the Michigan kinds, the pear-fruited Thorn (*C. tomentosa,*) holds its fruits best. Up to Christmas all these ruby colored fruits remained erect, long after every other sort had fallen. The fruits are small, resembling a small rose-hip, and contain so little flesh that the worms do not trouble them. They are borne in clusters. Hereabouts the branches of this Thorn are nearly bare of leaves where the clustered fruit is borne, so that the autumn aspect of the plant is singularly attractive.

Thorns are attractive in fruit, in habit, in foliage and in flowers. Upon this classification I should place our Michigan Thorns, five sorts, as follows, in order of preference :—

For Fruit : *C. tomentosa* var. *pyrifolia, C. punctata* (*C. tomentosa* var. *punctata*), *C. coccinea, C. Crus-galli, C. subvillosa* (*C. tomentosa* var. *mollis*).

For Habit : *C. punctata, C. coccinea, C. subvillosa, C. Crus-galli, C. tomentosa* var. *pyrifolia.*

For Foliage : *C. Crus-galli, C. coccinea, C. subvillosa, C. tomentosa* var. *pyrifolia, C. punctata.*

For Flowers : *C. coccinea, C. Crus-galli, C. punctata, C. tomentosa,* var. *pyrifolia, C. subvillosa.*

Michigan Agricultural College. *L. H. Bailey.*

Plant Notes.

Milla biflora, Cav., in its Home.—By an occasional glance at horticultural journals, whenever returned to civilization, I have been gratified to learn that this plant, which I have admired in the wilds of North Mexico, is being brought into general cultivation. I had for two years seen it scattered over the grassy plains and foothills and even on the broader mountain summits about Chihuahua—the plant on the richer plains growing to a height of two feet and bearing half a dozen flowers, in the thinner, dryer soil of the mountain top less than a foot high with but a single flower—but, not until I reached the high plains about the continental divide and near the Cordilleras, did I find it in abundance. Here on broad swells were miles of prairie bespangled with its silver stars crowding upon a yellow-flowered Phlox and a purple Pentstemon. From a bulb one-half to three-fourths inch in diameter, planted two to four inches deep, it sends up a stem one to two feet high, bearing one to five flowers. Under good culture the size of the bulbs must rival those of some classes of Gladiolus, and a much taller stem must bear an umbel of a dozen flowers, whose size is proportionately increased. The fact that its flowers possess much endurance, and succeed one another in the umbel during many days, in the way of Agapanthus, must add merit to the plant. It should prove hardy, with a light covering of leaves, in American gardens, and would doubtless thrive best if thus wintered in the soil. The plant propagates itself by seed only.

Calochortus flavus, Shult. f.—Associated with *Milla biflora* in the drier situations we find this, another liliaceous plant of much beauty, as yet little known in gardens. On a branching stem a foot high it bears two to four, or more, nodding flowers, one to two inches broad, of rich crimson and gold and furred within. In a Northern garden the plant has shown even in one year much increase in its size and in the number of its flowers. *C. G. Pringle.*

Caryopteris Mastacanthus, Schauer.—Among the novelties of late years this beautiful shrub, introduced into Europe by Veitch & Sons, deserves special notice. A native of China, its hardiness was doubted at first, but it has done very well in a dry, sunny position ; as well at Baden-Baden as in England. It is a much-branched shrub of a sturdy appearance much like a Ceanothus. Along the branches and branchlets, wherever there is a leaf, a little bunch of small starry flowers is produced, assuming an umbellate form and decorating the whole shrub with deep blue. It flowers here about the middle of October, when flowering shrubs are quite as rare as blue flowers. Planted against a low wall and left to grow at will, all passers-by are struck with its beauty.

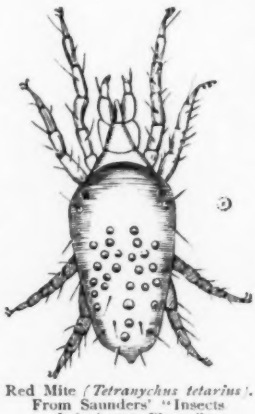
Baden-Baden. *Max Leichtlin.*

(This plant was discovered by Fortune in Southern China, and is well described in De Candolle's *Prodromus*, xi. 625. It is a native also of Japan, where it is said to grow on the borders of old fields and on the summits of mountains. It is from Japan that the Messrs. Veitch introduced it into cultivation, and there is a prospect, therefore, that it will prove hardy in the United States. A good figure of *Caryopteris mastacanthus* appeared in the *Gardener's Chronicle*, xxi. n. ser., 149. It belongs to the Verbena family.—Ed.)

The Red Mite on Verbenas.

The two packages of Verbena sent by Mr. Peter Henderson to the office of Garden and Forest, one containing young, healthy plants, and the other those which have been dwarfed and crumpled by the attacks of the mite, illustrate well the work of this pest. We could not find any full-grown specimens, but only the very small young, which were of a pale yellowish color.

The red mite, erroneously by some called the red spider, is one of the few mites which spin a web. When we examine the mouth parts it will be seen how well adapted it is for cutting into and sticking close to leaves ; its jaws, like those of seed-ticks, form a spiny beak, with the points directed backwards ; with this beak it can anchor itself in the soft parts of the under side of leaves, while with the forceps-like feelers it can eat its way into the leaf, or grasp surrounding hairs or projecting parts of the leaf and steady itself while sucking the sap of the plant. Its presence may be detected by the slight web, the blighted, pale patches on the leaf, and sometimes, as in the examples before us, by the striking alteration in the leaves and the dwarfed appearance of the Plant.



Red Mite (*Tetranychus tetarius*). From Saunders' "Insects Injurious to Plants."

A general pest of Plants, both in the hot-house and in the garden, when it varies much in color, most of them when fully grown being greenish to rust-red, sometimes quite dark, the creature propagates rapidly, and abounds most in hot, dry seasons, moisture being unfavorable to its growth.

As to remedies, it should be borne in mind that all mites are very susceptible to sulphur, hence as a preventive measure laying flour of sulphur upon the pipes in the hot-house has been recommended. It would also be well to underspray the leaves of infected plants with such a solution of sulphur as would cause the powder to remain on the leaves. Spraying machines are the most efficient means of rapidly and evenly diffusing insecticides of all sorts, though we have not heard of their use in the hot-house. Finely powdered tobacco, or even Paris green or London purple in solution, the latter carefully applied with the sprayer to plants not in flower, would be worth trial.

Nearly all mites, like all insects, breathe through minute openings in the sides of the body, hence any oily or greasy substance which, spreading over the body, will form a film over the air-holes, will kill the creature ; it is soon asphyxiated or drowned. For this reason greasy or oily substances are the most powerful and sure insecticides. Oily emulsions, even cotton-seed, or any other vegetable oils, could easily be used in hot-houses ; kerosene emulsions should be used with care, and only after experiments, so as not to injure the plant itself, since mineral oils are most destructive to plant-life. Perhaps underspraying with whale-oil soap or sulphur in solution is the readiest and most available remedy, but it would be worth while to experiment with the Paris green or London purple solutions, also kerosene emulsions, which have proved so successful out-of-doors ; always bearing in mind that frequent showerings with soap-suds or water alone, by which the leaves are kept wet, tends to prevent undue increase of the pest. Mr. Henderson thinks he has discovered a complete remedy for this pest in the use of manure water. The increased vigor of the plant under this treatment seems to enable it to outgrow the ravages made by the mite.

A. S. Packard.

Cultural Notes.

Primula Obconica.—This is a comparatively new Primrose, a native of China, and one of the sweetest and loveliest, and so far as I know, the most free and continuous blooming of the genus.

It was discovered in the neighborhood of Ichuny, Central China, by Maries, collector for Veitch, of London, and first bloomed in cultivation in the Veitch nurseries in September, 1880. In the *Botanical Magazine* (tab. 8582), 1881, it is figured and described under the name of *Primula poculiformis*. In *The Garden*, September 6th, 1884, there is an excellent colored plate of it prepared from an English garden-grown plant.

Soon after its *début* into English gardens it found its way to America, and so well has it behaved that it has become a fixed favorite wherever grown. Indeed, so favorable an impression has it made that one florist near Boston has made a specialty of it for cut flowers, and the Boston seedsmen this year offer it as their most important novelty.

We have it here and are exceptionally well pleased with it. We treat it as a cool green-house pot plant, and find that it is of the easiest possible culture, free growing and continuous blooming, and may be treated as an annual or perennial. Veitch speaks of it as "flowering continuously and profusely from spring to autumn," and recommends it "during the summer months for the open border." Some plants procured two years ago have been in bloom continuously ever since then and have more flowers now than they have had at any time previous. I sowed some seed last spring, it germinated in about two weeks, and the seedlings have grown and flourished. They began blooming in August and have been in full bloom ever since.

The foliage much resembles that of *P. cortusoides*, a Siberian species grown in our gardens as a hardy perennial, but is not deciduous. The flowers are white to pale mauve-purple, showy and sweetly fragrant, and are borne in loose umbels on tall scapes that rise well up above the foliage; and in thrifty plants the umbels have an inclination to break off into whorls after the fashion of the inflorescence of *P. Japonica*. The blossoms last well as cut flowers, and the plants make excellent house or window plants. During the summer months our plants set seeds freely and without any artificial assistance, but since winter began no seeds have set except where artificial assistance has been given. *W. F.*

Leptosyne Maritima.—A perennial composite with succulent stems and much divided fleshy leaves, and large showy bright yellow flowers produced singly at the ends of long slender stalks. The plant is indigenous to "Sea beach at San Diego, and on the islands."

I have grown this plant for a good many years, out-of-doors in summer and in the green-house in winter. Although it is a perennial it is treated as an annual, it begins to bloom when about four months old, and so long as it continues in good healthy condition, so long it will continue in bloom.

Planted out-of-doors in summer it grows and blooms prettily, but here it does not bear as fine flowers as it does in the green-house in winter. Our plants are in six-inch pots, in a sunny green-house, with a night temperature of about fifty degrees, and they now have been in full bloom for more than three months. This Leptosyne loves sunshine and will not thrive in the shade; and it very much dislikes a close, moist atmosphere or an over-wetted soil.

The blossoms are well adapted for cut flowers and last in good condition for several days after they have been cut; but as they are apt to partially close up at night this weighs heavily against them.

L. Stillmani and *L. Douglasii* are both Californian annuals, pretty enough in their way, but small and short-lived, and without anything of the bold, showy character of *L. Maritima*. *F.*

Carnations.—James Y. Murkland is the brightest scarlet we have, but the flowers are not full and solid enough or the plants sufficiently abundant or enduring to justify its use as a main crop. Portia is our stand-by for scarlet. It is early, continuous, a great cropper and the flowers do not burst. Among scarlets, E. S. Hill gives superb promise. The plants are vigorous and the flowers unusually large. Marshal P. Wilder has very large flowers, but they are short-stemmed and the calyx bursts. My best white is Hinzy's. Started early and not pinched after June it begins to bloom in September and lasts in good condition till February. Peerless, Snowdon and Degraw do not do well here. Neither do Buttercup nor Astoria among yellows. Lydia, yellow striped with pink, is the best of its class. Columbia, after the same fashion, but with narrower stripes, is an abundant bloomer, but the flowers are not very firm. La Purite, carmine, is a capital grower, and it blooms freely too, but the flowers burst a good deal. Charles Henderson, tall and very copious, has carmine fringed flowers, rather small, but of capital form. Kaiser William has violet purple flowers of good form and striking in color, but many ladies object to the shade. Petunia is a slender grower, but it bears a good crop of rose purple and white full double, though often ragged, flowers, which are much esteemed by ladies. Crimson King used to be our mainstay in its class, but it is beginning to fail. Black Knight still holds good. It is of slender growth. It blooms sparingly in fall and early winter, but as January advances it waxes in strength. Gibbonsii is the largest and finest of all our crimsons, but it is a late-blooming one-cup variety. May Queen, bright rose, is a lovely, perfect flower, and unlike most varieties of its class, the color of whose flowers soon fades, its flowers retain their bright color for several days after they have been cut. While Grace Wilder is a very pretty carnation and of a desirable shade of blush, the color soon fades. This variety is often rather refractory. *W. F.*

Brodiæa (Triteleia) Uniflora.—This charming Liliaceous plant we grow in pots for decoration of the conservatory. For this purpose it is very valuable, especially at this dull season of the year, besides being very pretty. It flowers in great abundance (as many as fifty flowers may often be had in five-inch pots) and will last a long time in perfection. We give them the usual treatment of this class of Bulbs, viz.: good rich soil in well drained pots, liberal watering while growing, gradually drying off for the summer months and repotting in the fall. There are two or three varieties of this species, one a pure white. It was introduced from Buenos Ayres in 1836. *F. G.*

Grapes Under Glass.

OUR early vinery contains, mostly, Black Hamburgh; our medium, Muscat of Alexandria; and our late, Lady Downes, which I think is the best of all late grapes. Lady Downes, Black Alicante, Gros Colman and other late sorts will succeed pretty well when grown in the Muscat house, but I much prefer growing them in a house by themselves. I have Alnwick Seedling growing in the same house, and alongside of, Lady Downes. It sets as freely as does a Black Hamburgh and produces large blue-black berries and bunches of three to seven lbs. each in weight, but the grapes do not keep long after they are ripe. Indeed, I have, every year, to begin cutting them before I have cut half of our Muscats. Except for exhibition purposes I do not regard it favorably, but it will make a good enough stock on which to inarch more serviceable sorts. Black Alicante like Lady Downes always hangs on the vines plump and fresh till New Year's. Pearson's Golden Queen is a good-looking grape, but of little merit except for exhibition. After having given it a fair trial, both as an early and a late grape, I have concluded to discard it.

After the fruit is ripe in the Muscat house I bring *Dendrobium Wardianum* and others of its class into it to ripen their flowering pseudo-bulbs. I also use the earliest vineries for Chrysanthemums in the fall, but I never bring these in before all the grapes are cut, and I remove them before we begin to give our vines their annual cleaning. On no account do I ever allow any plants to be kept in or brought into the Lady Downes house, as the extra moisture they would induce would be detrimental to the keeping qualities of the grapes, which we wish to have in plump and good condition as late as possible—usually till January. I never permit any bedding or miscellaneous green-house plants, apart from those mentioned above, to be kept in any of the graperies under any circumstances, so as to avoid all possible chance of the introduction of mealy bugs or other insect vermin.

Of recent years we have discontinued the use of the syringe in our vineries except in the case of our earliest house, and in that we discontinue syringing as soon as the grapes begin to color. After the fruit is cut from it, however, we give the vines a few heavy drenchings of a solution of whale oil soap and tepid water—about two ounces of the soap to the common wooden pailful of water, and applied about sunset.

On account of the small amount of fire heat we use to help ripen the fruit and wood, we are not troubled with red spider.

We use tobacco stems as a preventive against thrips, placing them on the border between the bottom ventilators and the front row of pipes, and in this way use at one time a barrel of stems to every sixty feet in length of house. We renew the tobacco stems three times during the summer, and each time have them fresh from the cigar factories.

David Allan.

The Lawn.

NOW is the time to attend to the lawns. If they have been top-dressed with manure or compost over winter, on some fine dry day when it is not frozen, go over the lawn with wooden-toothed rakes and spread the dressing equally over the ground. Then repeat the operation and rake off all sticks, stones and other rough things that may have been in the dressing, but do not rake off any of the manure except where it may be so heavy as to threaten interference with the mower in summer. If this is done now, there will be no fear of the grass bleaching under the manure where it has fallen in lumps, but if delayed till the grass begins to get green it will bleach, then sun-scald and look patchy.

Lawns that have not been top-dressed should also be raked over with close-toothed wooden or iron rakes, so as to clear off the loose dead grass and other *débris* that would interfere with the mower. In raking the lawns be very particular along the borders of roads and pathways, where small stones may have been thrown up on the turf.

If the dead grass is long or shaggy burn it off. This may be heresy in the eyes of theorists, but experience has proved it to be good practice. The burning does not injure the crowns of the grass in the least degree nor destroy a particle of the nutriment on the surface of the ground, but it effectually gets rid of the dried grass, which, if not removed, would clog the mowers and weaken the young shoots in coming up.

If the surface of the lawn has any depressions fill them up with loam. These may be the foot-prints of men or animals made when the ground was soft. And some morning when the lawn is wet and soft go over it with a heavy roller to make the sod smooth and even; but never use horses in the roller when the lawn is in this condition, as their feet would leave deep impressions in the ground. With two men and a hand iron roller all the grass in the narrow places, as between the trees and shrubs, can be reached, and in the open spaces eight men to a large iron roller do capital work.

Many spots in the lawns will need patching. Where trees or rocks, in former years, have been dug out, the earth may have sunk so as to form a hollow; fill up such places with loam, and resod. And where little hillocks occur on the lawns, shave them down and replace the sod.

Sometimes weeds kill out the grass. The most destructive of these pests are Yarrow, Mouse-ear Chickweed and Sorrel. They kill out broad patches, and can only be overcome by being dug under or cut out, and again resowing or sodding the ground to grass. Crabgrass is almost invulnerable. So long as we keep our lawns smoothly shaven we cannot subdue it, for in September and October it spreads its wiry stems along flat on the ground and perfects and scatters its seed for the next season's work. The only way to get rid of it is to pasture the land or so encourage the lawn grasses to grow that they shall choke it out.

Where the lawn is mossy, as in the neighborhood of trees, or rather bare of grass caused by impoverished land or drought, remove the moss with a sharp long-toothed iron rake and loosen the surface of the ground; then topdress thinly with rich earth, and sow some red topseed on it, rake it in and roll firmly.

Where it is needful to do repairing, as for example, to mend the borders along the roadsides, to cover places caused by recent tree removals, to turf over beds, mend banks about the house, and the like, always use sod in preference to grass seed. Where much sod-laying has to be done a sod-cutting machine should be used, but in small places where the sods are cut with a spade never let two or more men work for the same piece of ground, as no two men cut sods alike. With the ground properly prepared and leveled, and the sods all equal in thickness, length and width, in laying them it is an easy matter to make a neat piece of work. All sodding and seeding should be done as early in spring as possible, in order that the grass may be well up and have a good hold upon the ground before the warm dry weather sets in.

William Falconer.

DO NOT HURRY to uncover the Roses, Strawberries and other plants that you have protected over winter. A few bright, warm days in March is no indication that the winter has completely retired; the frosty, searing winds of March are more injurious to plants than is the zero weather of January.

GARDEN LABELS.—The frost will have thrown many small labels out of the earth and we will now find them lying on the surface of the ground. If this is neglected the wind will blow them about. Stick them into the ground where you find them lying.

The Forest.

Forest Trees for California.

A GLANCE at the forest map of California, given in Vol. 9 of the Report of the Tenth Census, shows that there are in the State but two compact bodies of timber; that of Pines and Firs covering the higher western slopes of the Sierra Nevada, and the Redwood belt stretching along the western portion of the Coast Range, from the bay of Monterey to the Oregon line. The lower foothills of the Sierra, and the plateaus and northern slopes and cañons of the Coast Ranges, bear a scattered growth of timber; but neither the quantity nor the quality entitles it to be counted on for more than a scanty supply of firewood, after the needs of the first settlers have been met. The great valley, and the adjacent slopes on either side, are practically treeless, except along the courses of the streams, and on the exceptional area formed by the delta of the Kaweah River, in Tulare County, which is covered with quite a compact growth of the White Oak (*Quercus lobata*). A scattered growth of the same Oak prevails in most of the Coast Range valleys, outside of the Redwood belt; on the rolling lands near the coast, it is intermingled with the California Live Oak (*Q. agrifolia*) and the Black or Sonoma Oak (*Q. Kelloggii*). Along the Sierra foothills it mingles with the Blue Oak (*Q. Douglasii*); higher up it disappears and the Blue Oak with the two mountain Live Oaks (*Q. Wislicenii* and *Chrysolepis*) and the Foothill or Digger Pine (*P. Sabiniana*) prevail. These, with occasional groups or individuals of the beautiful Madrone (properly Madrono—*Arbutus Menziesii*), a few Firs on the higher levels, and in the cañons the large-leaved Maple (*Acer macrophyllum*), the Box Elder, the large Alder (*Alnus oblongifolia*), and last but not least the Laurel (*Umbellularia Californica*), constitute the common tree growth of Central California that, outside of the timber belts first mentioned, might be expected to serve the common uses of the deciduous forest trees of the Atlantic slope. To these are added, in the northern portion of the State, a part of the Conifers of Western Oregon; while in Southern California, a number of trees mentioned above are wanting, or but feebly represented, and the mountains as well as the valleys are as a rule scantily timbered, and largely quite bare of trees.

Even were these trees mentioned as well adapted to the uses of every day life as those of Eastern deciduous forests, their relatively scanty occurrence within that portion of the State best adapted to dense settlement would render the maintenance of the timber supply a question of the most pressing importance. But as a matter of fact the wood of most of the native non-Coniferous trees, and especially that of the lowland Oaks, subserves but indifferently any purpose save that of fuel. Not only have the trees as a rule a very low trunk, beginning to branch from seven to fifteen feet above ground, and often losing the leader; but even the "clear" wood is mostly so brittle and its grain so uncertain that to split it into rails, clapboards or staves is out of the question. When a tree is broken off by the wind, instead of the long, elastic splinters projecting from both ends, we find rough, jagged breaks almost square across. Of the California Live Oak, the wood-choppers sometimes state with mild exaggeration that it splits crosswise about as readily as lengthwise. The White Oak is a little better, and like the Blue Oak is sometimes used for fence posts; but even in this dry climate they show little durability as such. Only the mountain Oaks can to a certain degree subserve the ordinary purposes of hardwoods; and no Californian tree, save perhaps these, could be successfully worked into axe helves, hoe handles, or other agricultural implements of any durability. The Maple, Ash and Laurel are to some extent used for furniture and inside finish, but not where strength of material is required. Practically all the hard woods used in California must be imported, and at present come from the Eastern States; a small part, for cabinet and decorative work, from Mexico.

It is thus natural that when trees have to be planted, the preference should be given to such as are likely to supply this great need, and it is equally natural that the first thought should turn toward the familiar Eastern forest trees that serve these purposes so well. Thus the seeds of the Hickories, and of the White and other Eastern Oaks, soon found their way into private grounds and nurseries for trial. It may be broadly said that the outcome of these experiments (repeated since on the experimental grounds of the University of California) has been eminently unsatisfactory. The young trees not only refuse utterly to avail themselves of the longer growing season for more rapid development, but show a perverse disposition to branch out low and form bushes without a definite trunk; and when pruned up with a view to forming a single strong trunk, will sometimes return to first principles by sending up shoots from below. I doubt whether there exists at this time in the State, a specimen of an Eastern Oak or Hickory that would not have been better developed almost anywhere east of the Mississippi River, at the same age.

Not all the deciduous forest trees of the Atlantic States, however, behave in this way. Thus the Cork Elm, the Linden, several Maples, the White-wood (Liriodendron) and some others, develop normally, and some of them somewhat more rapidly than in their native clime. But none of these can properly fill the gap left by the Oaks and Hickories; and hence, substitutes for these have been sought in other climates, notably in Australia, whose rapid-growing Eucalypts and Acacias have already acquired a wide distribution in California. Oddly enough, some trees from diametrically opposite climates seem also to adapt themselves to that of California, and most promising among these, at the present time, is the European or "English" Oak (*Q. Robur*, var. *pedunculata*).

E. W. Hilgard

Growing Deciduous Forest Trees from Seeds.

WE sow all of our tree seeds in Spring, and as the following rules are based on our own experience, they all apply to spring sowing.

WHITE ASH seeds ripen in early October, and fall after the first severe frost. They should be mixed with moist sand, and not allowed to become dry before sowing. This same treatment should be followed with all the native Ash family with one exception, viz., the Green Ash, which hangs on longer and will germinate if sown dry; all others will remain dormant until the next season, if sown dry.

HARD MAPLE seed ripen early in October, and require the same treatment as the White Ash.

SOFT MAPLE seeds ripen in spring immediately before, or about the time, that Apple trees begin to blossom. They should be sown within a few days after gathering.

ELM seeds ripen in spring, and they require the same treatment as those of the Soft Maple.

BLACK WALNUTS, and all nuts with a pulpy covering, may be spread in thin layers, say six inches deep, and covered with sods and litter to prevent dying during the winter, in which case the pulpy covering will be easily disposed of in spring.

Other *Nuts* and *Acorns*, together with seeds of the *Tulip tree* and *Basswood*, are safer treated as recommended for Ash and Hard Maple seeds.

CATALPA and AILANTHUS seeds are kept dry during winter and sown rather late in spring.

BIRCH and ALDER seeds are kept dry, and sown dry early in spring.

LOCUST seeds and those of all that family are kept dry through winter and soaked in hot water immediately before sowing.

All seeds with a fleshy covering, such as Apple, Cherry, Mountain Ash, Cucumber tree, Buffalo Berry, Red Cedar and Holly, are washed free from the pulp, mixed with sand and sown in spring. We make an exception generally with the Red Cedar and the Holly, as they never germinate evenly in the spring, therefore we bury them in a rot-heap during two winters and one summer, and sow the following spring.

POPLAR and WILLOW seeds are very fine and delicate, and require skill, close attention, and continual moisture during the early part of the season. Therefore it is cheaper and surer to raise them from cuttings than from seeds.

All seeds mixed with sand must be placed so that water will not stand around them. Frost will not injure them, unless in a position where they will freeze dry. A cool shed where they are protected from sun and wind, will be a proper place.

Robert Douglas.

Answers to Correspondents.

Cutting down Chestnut seedling trees from sixteen to twenty inches in diameter, I find them rotten at the heart. What is the cause, and how may I know when the decay begins?

Sharon, Conn. *J. L. D.*

The disease known as heart-rot, and under other names, which produces a decay in the centre or heart of trees, mostly older trees, is caused by various fungi, which attack the tree either from the root or above ground. While the precise progress of the disease is not yet fully understood, there seems no doubt, that other causes predispose the tree for the attack of the fungus; a dying or dead root, or the stump of a broken branch give usually entrance to the mycelium of the fungus. Unfortunately, neither the beginning nor the progress of the deterioration, which is the consequence of the fungus growth, is readily observed, since the tree, attacked only in the old, inactive wood, shows no outward sign of interior disease in its general appearance, and the fungus may do its destructive work for years without fruiting, by which alone it makes its existence apparent externally. Whenever a fungus (fruiting) appears on the stem, especially on the scar or stump of a broken branch, or near the foot of the tree, it is usually the sign of a heart-rotten tree. This disease is often the consequence of injudicious pruning of older trees, and should induce a more careful use of the pruning knife; shallow soil with hard-pan subsoil, especially if subject to overflow, is also conducive to this disease and necessitates earlier utilization of the timber to avoid loss.

B. E. F.

Recent Publications.

Gleanings in Old Garden Literature, by W. Carew Hazlitt. New York: George J. Coombes, 1887. Reprinted from the English Edition.

This book on Old English Gardens is a charming new volume—one of that charming series called *The Book Lover's Library*, which is issued in England, but also in New York, by Mr. George J. Coombes.

It is a small volume, written in a bright and unpedantic style, yet the amount of curious information it contains is immense. Early herbals and physic gardens, kitchen, window and cottage gardens, and orchards are described, together with methods of bee-keeping and wine-keeping. The herbs and vegetables, the flowers and trees which the Englishman of former generations loved, are named. Bacon as a gardener has a chapter to himself. The way in which Bacon and Shakespeare spoke of the Strawberry forms the text for a delightful little essay. Elizabethan gardening, the French and Dutch schools, Evelyn and his "Sylva," Walpole and the gardeners of the eighteenth century—all these are successively discussed by the aid of numberless citations from rare and quaint publications; and, in short, nothing which relates to the craft of gardening or the love of flowers and plants in the olden time has been overlooked by this industrious yet lively author. The wide extent of his acquaintance with the by-paths of literature is proved on every page, and a valuable bibliography of English works on gardening published between 1603 and 1800 brings his volume to a close. As an appendix he adds, moreover, a reprint of Gibson's "Account of the Gardens in and round London," which was written in 1691.

It should be explained that Mr. Hazlitt's book contains small reference to gardening as an art in the wider sense—to what we call to-day Landscape Gardening. Individual plants and the methods of cultivating them are his concern, and the old books which would be most useful to the landscape gardener have no place in his lists. But within its own field his book seems complete, and it should find a place on the shelves of every horticulturist who has a soul for the history and literature of his favorite recreation and an eye for a pretty volume.

Flora Peoriana. The Vegetation in the Climate of Middle Illinois, by Frederick Brendel; pp. 1-89; Peoria, 1887.

We cannot do more than call attention to this interesting paper, the result of thirty-five years' study of the vegetation of a small area of about thirty-five square miles, by an excellent botanist and observer of nature, who explains in his preface that "it is intended to show how local floras should be treated to be useful to phytogeography; how notice should be taken of soil and climate to understand the vegetation of a certain

floral district." The hope that the author expresses that this publication will lead to similar studies in other parts of the country will be shared by all students of geographical botany.

Shade and Ornamental Trees Suitable for Cultivation in Queens Co., N. Y., by William Falconer. Reprinted from the Annual Report of the Queens County Agricultural Society, 1887; pp. 21.

This is not, as might have been expected from the title, a mere list of trees hardy on Long Island, but a carefully prepared essay on ornamental and street planting, with suggestions of the best trees to be used in different situations and for different purposes and with many sensible cultural directions which planters will find useful. It is pleasant to note that Mr. Falconer is a firm believer in the ornamental value of our native trees.

Trees of Reading, Mass. Part I.; by F. H. Gilson; Reading, 1888.

Mr. Gilson has had the happy idea of photographing and collecting historical information and valuable statistics in regard to the most remarkable trees growing near his home, and the still happier idea of allowing the public to share in the results of these studies. Part I. of this work now published contains beautiful heliotype portraits of five trees with accompanying letter-press. The Sassafras No. 2, with a trunk girth at the ground of 10ft. 3in., will probably prove to be the finest specimen in the Northern States, and No. 4, the "Nehemiah Bancroft Elm," is as noble a specimen of the American Elm as is often seen. Very fine, too, are a second Elm and a wide-branching White Oak. The cultivated cut leaved weeping European Birch, which completes this first series, seems out of place in this company, and such a work might more wisely be devoted to native trees. Of these there are still many noble specimens left in different parts of New England, and Mr. Gilson will confer a real benefit upon all tree lovers if he will extend the field of his studies to other parts of the country.

Public Works.

Tree Planting on Boston Harbor.—An interesting report has lately been made by Mr. Frederick Law Olmsted to the Commissioners of the Boston Department of Parks on the subject of planting the islands and headlands of the Harbor. The shores and islands are characterized by great variety of form, and they are picturesquely disposed, making intricate straits and vistas opening towards the ocean. One drawback to the attractions of the Harbor is the bleak aspect of the bluffs and islands, and it is plain that if they were wooded or clothed with foliage or verdure of any kind the scenery would be much more agreeable. On even the most exposed and rocky of these islands stumps remain to prove that they were once tree-clad, but since they have been cleared, a second growth has been prevented by pasturing animals. Deprived of forest protection the land has been losing fertility, as it has been exposed to the winds and salt spray, and the Harbor is every year being despoiled more and more of its original beauty. It is thought that if trees of the species which formerly flourished here were planted with suitable undergrowth they might help each other to endure the hardships of the place. In a very few years these young plantations would give a pleasing softness to the elements of the scenery which do not contribute to its picturesque ruggedness. When the plantations have attained a full-grown forest character the broad masses of foliage will lift the skylines of shores and islands, add to their variety of tint, and deepen their shadows. Of course such trees as are usually planted in lawns, parks and cemeteries could not be used successfully, but Mr. Robert Douglas, who has had a wide experience in planting trees under trying conditions, and who has studied the Massachusetts coast plantations made by Mr. Joseph S. Fay and others, has faith in the project and offers to take a contract to carry it out. Mr. Douglas will engage to plant the entire area, some 400 acres in extent; to care for the trees until they are well established, in thrifty condition and shading the ground completely, so that they will need no further cultivation. Payment is to be made in installments, the last one, sixteen per cent. of the whole amount, due only when 800,000 trees are certified by qualified agents appointed by the Park Department to have been found on the ground well rooted and thrifty. By the terms of such a contract the young trees would have the care of one of the most successful planters in the country during the most critical period of their history, and the risk to the city would be reduced to its lowest terms. It is thought that $5,000 a year, for six years, to be used at the discretion of the Park Department, would be sufficient to insure a substantial success.

Flower Market.

New York, *March 2d, 1888.*

There is a decline in the price of flowers, excepting in a few sorts which appear unusually well grown. Weigela is the novelty of the week, it having been forced by a New Jersey plantsman. It sells for 25 cts. a long spike, and is highly esteemed by decorators. Hybrid Roses are plentiful, but their average quality is not satisfactory. The choicest are sold for $1 each. Baroness Rothschild and Mabel Morrison have appeared. Selected American Beauties are also $1. The favorite Gloire de Dijon Rose arrives in limited quantity and sells for 50 cts. a flower. Puritan Roses sell for 50 and 75 cts., and La France from 25 to 50 cts., according to quality. Perle des Jardins, Niphetos and Souvenir d'un Ami are down to $1.25 a dozen, and Brides bring 20 and 25 cts. a flower. Maréchal Niel Roses are to be had for from 25 to 50 cts., the latter priced ones including a bud. Acacia has never been so plentiful and low-priced. It brings one-third less than it did last season. A good-sized branch may be had for $1, and 25 cts. will buy what is termed "a spray." Carnations are selling for 50 cts. a dozen, excepting such varieties as Grace Wilder, Buttercup, Dawn and Harrison, which, when long-stemmed, sell for 75 cts. a dozen. Spikes of Mignonette, very large and beautiful, bring 35 cts. each, and smaller spikes cost from 10 to 25 cts. Callas are 30 cts. each, and Longiflorum Lilies from 40 to 50 cts. *Lilium Candidum* has just appeared, and sells for $2.50 and $3.50 a dozen. A single stalk with two flowers and a bud sells for 50 cts. Violets cost from 75 cts. to $2 a hundred. The latter is the fancy price for those fresh-picked and brought in at certain hours daily. French Marguerites are of two qualities, those small, with fragile stems, which cost 25 cts. a dozen, and those of twice the size, on firm long stems, which bring 50 cts. a dozen. Double Tulips are in more active demand than other varieties. Tulips remain as last quoted, as do other flowers not mentioned above. *Asparagus plumosus* is used more freely than ever before because in greater supply. *A. tenuissimus* has somewhat given way to the former variety in popularity. For yard lengths *A. plumosus* costs $1, and *A. tenuissimus* from 60 to 70 cts. Smilax brings 40 cts. a string. The cut flower trade has been active since the second week in Lent, Jewish weddings, dinners and luncheons having kept business stirring. Orchids are in steady request for table decoration. They do not fluctuate in price. They are to be ordered from all the first-class florists, but a variety is only kept on hand by those who have growing collections. Prices range from 50 cts. to $1 a flower, and for sprays from $2 to $5.

Philadelphia, *March 2d.*

The demand for flowers the past week has been fair, for the Lenten season. Jacqueminot Roses are more plentiful, prices ranging from $3 to $5 per doz. Mrs. John Laing is becoming more abundant, selling at the same price as Jacqueminots. Anna de Diesbach and Magna Charta may be had in limited quantities at from $4 to $6 per doz., but these darker shades of pink are not so popular in this city as the more delicate tints, like those of Madame Gabriel Luizet or Mrs. John Laing. American Beauty is preferred, when the darker colored sorts are required. *Asparagus tenuissimus* is not popular here. This is difficult to understand, because it is so delicate and lasts so long for room decoration. For festooning about mirrors few plants are more effective. Gardenias may be had in limited quantities at 25c. each. Marguerites and English Daisies are in fair demand at 25c. per doz. Perles have been overdone this season. Sunsets are more popular.

Boston, *March 2d.*

The weather has been wintry during the week and while it continues cold there will be little change in the prices of cut flowers. Some varieties of Roses, especially La France and Catherine Mermet, have been really scarce, an unusual feature of the market at this season. Violets are abundant and consequently cheap. Pansies are also becoming more plenty and the quality was never better. Long stemmed Carnations have seldom been seen here in such perfection and variety as at the present time. They are gaining rapidly in popularity, for buyers are beginning to appreciate them and are learning that there are few varieties of flowers which will keep so long in a warm room. Its own foilage is of course the best setting for the Carnation. Daffodils, Tulips and Lilies-of-the-Valley are still offered in large quantities. Great vases of Callas and *Lilium Harrisii* make a grand display in all the florists' windows and are a reminder that Easter will soon be upon us. Spiræa and Deutzia, which are always grown largely for Easter, are also beginning to come in in moderate quantities. The best Jacqueminots and Hybrids can be had now at from $4 to $6 per doz. La France, Catherine Mermets and Marechal Niels at $3. Perles des Jardins and Niphetos at $1.50 and the small Teas at 75c. per doz. Hyacinths and Tulips cost 75c., and Lily-of-the-Valley and Trumpet Narcissus $1 per doz. For finest long-stemmed Carnations 75c. per doz. is asked, while Pansies, Mignonette, Calendulas, etc., can be had at 50c. per doz. Callas bring 15c. to 25c. and Harris's Lilies 35c. each. A fine box of choice Orchids with a slight sprinkling of Maiden-hair Ferns, Asparagus and a few dainty sprays of Heath, makes a superb gift and costs from $25.00 to $50.00.

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This is not, as might have been expected from the title, a mere list of trees hardy on Long Island, but a carefully prepared essay on ornamental and street planting, with suggestions of the best trees to be used in different situations and for different purposes and with many sensible cultural directions which planters will find useful. It is pleasant to note that Mr. Falconer is a firm believer in the ornamental value of our native trees.

Trees of Reading, Mass. Part I.; by F. H. Gilson; Reading, 1888.

Mr. Gilson has had the happy idea of photographing and collecting historical information and valuable statistics in regard to the most remarkable trees growing near his home, and the still happier idea of allowing the public to share in the results of these studies. Part I. of this work now published contains beautiful heliotype portraits of five trees with accompanying letter-press. The Sassafras No. 2, with a trunk girth at the ground of 10ft. 3in., will probably prove to be the finest specimen in the Northern States, and No. 4, the "Nehemiah Bancroft Elm," is as noble a specimen of the American Elm as is often seen. Very fine, too, are a second Elm and a wide-branching White Oak. The cultivated cut leaved weeping European Birch, which completes this first series, seems out of place in this company, and such a work might more wisely be devoted to native trees. Of these there are still many noble specimens left in different parts of New England, and Mr. Gilson will confer a real benefit upon all tree lovers if he will extend the field of his studies to other parts of the country.

Public Works.

Tree Planting on Boston Harbor.—An interesting report has lately been made by Mr. Frederick Law Olmsted to the Commissioners of the Boston Department of Parks on the subject of planting the islands and headlands of the Harbor. The shores and islands are characterized by great variety of form, and they are picturesquely disposed, making intricate straits and vistas opening towards the ocean. One drawback to the attractions of the Harbor is the bleak aspect of the bluffs and islands, and it is plain that if they were wooded or clothed with foliage or verdure of any kind the scenery would be much more agreeable. On even the most exposed and rocky of these islands stumps remain to prove that they were once tree-clad, but since they have been cleared, a second growth has been prevented by pasturing animals. Deprived of forest protection the land has been losing fertility, as it has been exposed to the winds and salt spray, and the Harbor is every year being despoiled more and more of its original beauty. It is thought that if trees of the species which formerly flourished here were planted with suitable undergrowth they might help each other to endure the hardships of the place. In a very few years these young plantations would give a pleasing softness to the elements of the scenery which do not contribute to its picturesque ruggedness. When the plantations have attained a full-grown forest character the broad masses of foliage will lift the skylines of shores and islands, add to their variety of tint, and deepen their shadows. Of course such trees as are usually planted in lawns, parks and cemeteries could not be used successfully, but Mr. Robert Douglas, who has had a wide experience in planting trees under trying conditions, and who has studied the Massachusetts coast plantations made by Mr. Joseph S. Fay and others, has faith in the project and offers to take a contract to carry it out. Mr. Douglas will engage to plant the entire area, some 400 acres in extent; to care for the trees until they are well established, in thrifty condition and shading the ground completely, so that they will need no further cultivation. Payment is to be made in installments, the last one, sixteen per cent. of the whole amount, due only when 800,000 trees are certified by qualified agents appointed by the Park Department to have been found on the ground well rooted and thrifty. By the terms of such a contract the young trees would have the care of one of the most successful planters in the country during the most critical period of their history, and the risk to the city would be reduced to its lowest terms. It is thought that $5,000 a year, for six years, to be used at the discretion of the Park Department, would be sufficient to insure a substantial success.

Flower Market.

New York, *March 2d, 1888.*

There is a decline in the price of flowers, excepting in a few sorts which appear unusually well grown. Weigela is the novelty of the week, it having been forced by a New Jersey plantsman. It sells for 25 cts. a long spike, and is highly esteemed by decorators. Hybrid Roses are plentiful, but their average quality is not satisfactory. The choicest are sold for $1 each. Baroness Rothschild and Mabel Morrison have appeared. Selected American Beauties are also $1. The favorite Gloire de Dijon Rose arrives in limited quantity and sells for 50 cts. a flower. Puritan Roses sell for 50 and 75 cts., and La France from 25 to 50 cts., according to quality. Perle des Jardins, Niphetos and Souvenir d'un Ami are down to $1.25 a dozen, and Brides bring 20 and 25 cts. a flower. Maréchal Niel Roses are to be had for from 25 to 50 cts., the latter priced ones including a bud. Acacia has never been so plentiful and low-priced. It brings one-third less than it did last season. A good-sized branch may be had for $1, and 25 cts. will buy what is termed "a spray." Carnations are selling for 50 cts. a dozen, excepting such varieties as Grace Wilder, Buttercup, Dawn and Harrison, which, when long-stemmed, sell for 75 cts. a dozen. Spikes of Mignonette, very large and beautiful, bring 35 cts. each, and smaller spikes cost from 10 to 25 cts. Callas are 30 cts. each, and Longiflorum Lilies from 40 to 50 cts. *Lilium Candidum* has just appeared, and sells for $2.50 and $3.50 a dozen. A single stalk with two flowers and a bud sells for 50 cts. Violets cost from 75 cts. to $2 a hundred. The latter is the fancy price for those fresh-picked and brought in at certain hours daily. French Marguerites are of two qualities, those small, with fragile stems, which cost 25 cts. a dozen, and those of twice the size, on firm long stems, which bring 50 cts. a dozen. Double Tulips are in more active demand than other varieties. Tulips remain as last quoted, as do other flowers not mentioned above. *Asparagus plumosus* is used more freely than ever before because in greater supply. *A. tenuissimus* has somewhat given way to the former variety in popularity. For yard lengths *A. plumosus* costs $1, and *A. tenuissimus* from 60 to 70 cts. Smilax brings 40 cts. a string. The cut flower trade has been active since the second week in Lent, Jewish weddings, dinners and luncheons having kept business stirring. Orchids are in steady request for table decoration. They do not fluctuate in price. They are to be ordered from all the first-class florists, but a variety is only kept on hand by those who have growing collections. Prices range from 50 cts. to $1 a flower, and for sprays from $2 to $5.

Philadelphia, *March 2d.*

The demand for flowers the past week has been fair, for the Lenten season. Jacqueminot Roses are more plentiful, prices ranging from $3 to $5 per doz. Mrs. John Laing is becoming more abundant, selling at the same price as Jacqueminots. Anna de Diesbach and Magna Charta may be had in limited quantities at from $4 to $6 per doz., but these darker shades of pink are not so popular in this city as the more delicate tints, like those of Madame Gabriel Luizet or Mrs. John Laing. American Beauty is preferred, when the darker colored sorts are required. *Asparagus tenuissimus* is not popular here. This is difficult to understand, because it is so delicate and lasts so long for room decoration. For festooning about mirrors few plants are more effective. Gardenias may be had in limited quantities at 25c. each. Marguerites and English Daisies are in fair demand at 25c. per doz. Perles have been overdone this season. Sunsets are more popular.

Boston, *March 2d.*

The weather has been wintry during the week and while it continues cold there will be little change in the prices of cut flowers. Some varieties of Roses, especially La France and Catherine Mermet, have been really scarce, an unusual feature of the market at this season. Violets are abundant and consequently cheap. Pansies are also becoming more plenty and the quality was never better. Long stemmed Carnations have seldom been seen here in such perfection and variety as at the present time. They are gaining rapidly in popularity, for buyers are beginning to appreciate them and are learning that there are few varieties of flowers which will keep so long in a warm room. Its own foilage is of course the best setting for the Carnation. Daffodils, Tulips and Lilies-of-the-Valley are still offered in large quantities. Great vases of Callas and *Lilium Harrisii* make a grand display in all the florists' windows and are a reminder that Easter will soon be upon us. Spiræa and Deutzia, which are always grown largely for Easter, are also beginning to come in in moderate quantities. The best Jacqueminots and Hybrids can be had now at from $4 to $6 per doz. La France, Catherine Mermets and Marechal Niels at $3. Perles des Jardins and Niphetos at $1.50 and the small Teas at 75c. per doz. Hyacinths and Tulips cost 75c., and Lily-of-the-Valley and Trumpet Narcissus $1 per doz. For finest long-stemmed Carnations 75c. per doz. is asked, while Pansies, Mignonette, Calendulas, etc., can be had at 50c. per doz. Callas bring 15c. to 25c. and Harris's Lilies 35c. each. A fine box of choice Orchids with a slight sprinkling of Maiden-hair Ferns, Asparagus and a few dainty sprays of Heath, makes a superb gift and costs from $25.00 to $50.00.